REMARKS

Reconsideration is requested in view of the above amendments and the following remarks.

Claim 1 has been revised. The revisions are supported by, for example, page 4, lines 13-20 and 33-34, and page 5, lines 23-26 in the Specification.

There is no new matter. Claims 1, 2, 4-8, and 11 are pending.

Drawings

The Office Action Summary page did not confirm that the drawings are accepted. Please see box 10 in the Application Papers section. Applicants respectfully request confirmation that the drawings are accepted in the next Official communication.

Claim Rejections – 35 USC § 103

Claims 1, 2, 4-8, and 11 were rejected under 35 USC 103(a) as being unpatentable over Thomas et al. (US 6291054) in view of Anderson et al. (US 2002/0082524) and Mori et al. (US 2002/0172829). Applicants do not concede the correctness of the rejection.

Regarding claim 1, Thomas et al. teaches a device "coated with a fluoropolymer non-stick coating" and "ceramic particles...forming protrusions on the coating surface, to provide abrasion resistance to said coating by deflecting abrasion force away from the coating" (Abstract). Thus, Thomas et al. teaches that the fluoropolymer non-stick coating has the non-stick property and the ceramic particles provide the abrasion resistance property.

Thomas et al. teaches that "abrasion refers to the amount of coating that is worn away as may occur by rubbing or sanding wherein the coating fibrillates and breaks away or shreds from the surface. In damaging a coated substrate, scratch may be followed by abrasion, in that a knife which causes plastic deformation of the coating, may also lead to the formation of fibrils which are subsequently worn away." (column 1, lines 23-30).

The Office Action stated that the effect of "intense wear" of the fluororesin coating discussed by Thomas et al. "is a result of not having projections to deflect the abrasive forces from the coating" (page 5 of the Office Action, referring to Example 1-1 in Table 2 at column 12). However, Thomas et al. also teaches that even with particles mixed with the non-stick coating, the fluoropolymer non-stick coating suffers abrasion wear (see Table 2, showing all

Examples have Abrasion % wear, also see Figs. 3-4). Further, in an abrasion test, the abrasive load is subjected to the protruding areas and particles. In protruding areas of the non-stick coating, the coating can wear away exposing the ceramic particle underneath. This phenomenon is shown in Table 2 of Thomas et al. In Examples 1-5 and 1-8, the initial dft is greater than average particle size, but after the abrasion test and abrasion wear, Thomas et al. teaches that the loss dft results in the average particle size being greater than the remaining dft of the coating. Accordingly, Thomas et al. teaches that protruding areas made of fluororesin materials wear away to expose the ceramic particles that were underneath the fluororesin material. Therefore, even if Thomas et al. teaches that the particulate matter may include a variety of materials, which Applicants do not concede, Thomas et al. clearly teaches that fluororesin particles are incapable of deflecting abrasive forces from the coating. In fact, Thomas et al. teaches that ceramic particles must have size of at least 14 micrometers and a Knoop hardness of at least 1200 "to deflect abrasive forces away from the coating surface" (claim 1 and column 2, lines 3-7, see also column 8, lines 10-23).

Further, Thomas et al. does not teach that particles that deflect abrasion enhance the non-stick property. In fact, Thomas et al. teaches that particle protrusions out of the coating hinders the property of friction reduction, making the coating material stick (decreasing "release").

Thomas et al. teaches that "the best abrasion result is obtained by the addition of 3% SiC type P600 having an average particle size of 25.8 ± 1 micrometers and a/b ratio in the range of 1.0 or lower, i.e., the size of the SiC particles are about the same or higher than the average film thickness. Although the abrasion resistance of such film is excellent, the film texture may be somewhat rough and may affect other properties such as release or gloss. As previously described, for a satisfactory system, a balance between abrasion resistance and release must be achieved" (column 12, lines 33-42). Thomas et al. teaches that "release" prevents "food particles from sticking" (column 1, lines 33-34).

Thomas et al. teaches that when the particles are included to "best" deflect abrasive forces, the frictional forces increase and thus the food particles stick to the film. Accordingly, Thomas et al. clearly teaches that abrasion resistance and frictional properties are two separate properties, wherein particles having a particular size and hardness provide the abrasion resistance by deflection of abrasive forces and wherein the fluororesin coating provides the non-sticking property.

Yet, the rejection erroneously associated the property of friction reduction to particles protruding out of the coating. The rejection erroneously stated that "projections of Thomas et al. [reduces] a frictional resistance" (page 5 of the Office Action). This statement contradicts the teaching in Thomas et al., which clearly states that the projecting particles increase friction "reducing release" (see column 12, lines 33-42).

Further, the rejection conceded that Thomas et al. in view of Anderson et al. fails to teach fluororesin particulates as recited in claim 1. The rejection stated that Mori et al. remedies this deficiency. Applicants respectfully disagree.

Replacing the ceramic particles in Thomas et al. with the fluororesin particulates taught in Mori et al. would remove any abrasion resistance in the device taught in Thomas et al. because the fluororesin particles according to Mori et al. would be incapable of deflecting the abrasive forces (as suggested in Table 2 of Thomas et al. In Examples 1-1, 1-5, and 1-8). Thus, replacing the ceramic particulate matter in Thomas et al. with fluororesin particles of Mori et al. would prevent achieving the "balance between abrasion resistance and release" and such combination would prevent the device taught in Thomas et al. from working as originally intended. (column 12, lines 40-42). Thomas et al. clearly teaches away from replacing the ceramic particles that deflect abrasion with fluororesin particles as taught in Mori et al.

Mori et al. is directed towards a device that prevents adhesion of the body fluid component due to enhanced lubricating property (and/or non-adhesion property to the body fluid such as antithrombogenic property) (see paragraphs [0001]-[0002] and [0100]). Mori et al. teaches that "in the coating composition according to the present invention...when the mixing ratio of fluorine-containing polymer exceeds 30 wt. %, the adhesion of the coating layer to the material to be coated (or the strength of the coating layer) has a tendency such that it is liable to be decreased. Further, in the coating composition of the embodiment to which the non-adhesion to the body fluid component is to be imparted, the antithrombogenic property thereof has a tendency such that it is liable to be decreased." (paragraph [0074]). Accordingly, Mori et al. teaches that if the coating layer exceeds 30 wt. % in fluorine-containing polymers, the coating layer will have reduced strength and decreased lubricating property.

Thus, even if the fluorine-containing polymer particles of Mori et al. could be added to the fluororesin coating layer taught in Thomas et al., which Applicants do not concede that they are combinable, such combination would place fluorine-containing polymer particles in a coating

layer of fluorine-containing polymers. The resulting coating layer would exceed the maximum 30 wt. % taught in Mori et al. and according to Mori et al., the resulting coating layer would have problems with the antithrombogenic property and adhesion problems (see paragraph [0074]). Thus, Mori et al. teaches away from combining fluorine-containing polymer particles with the fluororesin coating layer taught in Thomas et al.

Accordingly, for the purpose of decreasing friction, Mori et al. teaches away from the coating layer having greater than 30 wt. % fluorine-containing polymers. Therefore, one skilled in the art would not expect from to the teaching in Mori et al., that combining the fluorine-containing polymer particles taught in Mori et al. with the fluororesin coating layer taught in Thomas et al. would achieve a coating layer with reduced friction property.

Thomas et al. is directed towards preserving a non-stick coating surface material on a frying pan from abrasion wear by providing hard particles protruding from the coating surface to deflect abrasion away from the non-stick coating surface. In contrast, claim 1 is directed towards a coating surface that provides a medical wire with a low friction surface coating. Thus, it is unreasonable to consider that a coating applicable for frying pans and other cooking utensils can be applied to a medical device such as a guide wire for a catheter. Anderson et al. and Mori et al. fail to remedy the deficiencies of Thomas et al.

Further, Thomas et al. in view of Anderson et al. fail to teach that particulate matter and the fluororesin coating are in a single unit. Mori et al. teaches fluorine-containing polymer particles disposed on the surface surrounded by non-fluorine-containing polymer forming a coating layer that holds the fluorine-containing polymer particles (see Fig. 3). Mori et al. teaches that the fluorine-containing particles and the non-fluorine-containing polymer "are not fused or dissolved but they retain their particulate shapes, and ... [the separate materials] function synergistically" (paragraph [0032]). Accordingly, Mori et al. teaches that the fluorine-containing polymer particles are separate and distinct units from the coating layer. Therefore, Mori et al. does not remedy the deficiencies of Thomas et al. and Anderson et al.

For at least the above reasons, claim 1 is patentable over Thomas et al. in view of Anderson et al. and further in view of Mori et al. Claims 2, 4-8 and 11 are patentable for at least the same reasons as claim 1 from which they depend. Applicants respectfully request a favorable reconsideration of the claims.

In view of the above, favorable reconsideration in the form of a notice of allowance is respectfully requested. Any questions regarding this communication can be directed to the undersigned attorney, Douglas P. Mueller, Reg. No. 30,300, at (612) 455-3804.

Respectfully submitted,

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